

CLAIMS

1. A dehydrofluorination process which makes it possible to convert an aromatic carbamoyl fluoride to the corresponding isocyanate, characterized in that said carbamoyl fluoride is subjected to a temperature at least equal to 80°C, advantageously at least equal to 90°C, in a solvent and in that, at said temperature of at least 80°C, said carbamoyl fluoride is in the dissolved or finely dispersed state in the solvent.

2. The process as claimed in claim 1, characterized in that said reaction temperature is at most equal to 150°C.

3. The process as claimed in claims 1 and 2, characterized in that said solvent exhibits a boiling point of at least 100°C, advantageously 120°C.

4. The process as claimed in claims 1 to 3, characterized in that the reaction is carried out at a pressure such that, at the reaction temperature, the solvent is boiling.

5. The process as claimed in claims 1 to 4, characterized in that the solvent is chosen from those which are miscible with hydrofluoric acid, advantageously from halogenated aromatic derivatives which do not react with the carbamoyl fluoride.

6. The process as claimed in claims 1 to 5,

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characterized in that said carbamoyl fluoride is introduced into the solvent with hydrofluoric acid, advantageously in the form of a solution in anhydrous hydrofluoric acid.

5           7. The process as claimed in claim 6, characterized in that the ratio of the hydrofluoric acid to the carbamoyl fluoride (HF/carbamoyl fluoride) is at least equal to 2, advantageously to 3, preferably to 4.

10           8. The process as claimed in claims 1 to 7, characterized in that the addition of the carbamoyl fluoride, advantageously in the form of a solution, takes place gradually to a solvent heel brought to the chosen reaction temperature.

15           9. The process as claimed in claims 1 to 8, characterized in that the addition is carried out at a rate such that, in the ten final 90% of the reaction duration taking place below 100°C, advantageously below 90°C, the molar ratio of hydrofluoric acid to  
20 isocyanate (HF acid/aromatic isocyanate) is always less than 0.5, advantageously than 0.3, preferably than 0.1.

          10. The process as claimed in claims 1 to 9, characterized in that the carbamoyl fluoride substrate comprises an aliphatic carbon, that is to say of  $sp^3$   
25 hybridization, carrying at least two fluorines.

          11. The process as claimed in claim 10, characterized in that said aliphatic carbon carrying at

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least two fluorines is a benzyl carbon, that is to say that it is directly attached to an aromatic ring.

12. The process as claimed in claim 11, characterized in that said aromatic ring is that carrying the nitrogen of the carbamoyl functional group.

13. The process as claimed in claims 1 to 12, characterized in that the reaction mixture comprises less than 1%, with respect to the starting carbamoyl fluoride, expressed as moles, of impurities exhibiting a chlorine in the benzyl position.

14. The process as claimed in claims 1 to 13, characterized in that [lacuna] substrate corresponds to the formula:

15 
$$(R)_m - Ar(- (CX_2)_p - EWG) - NH - CO - F$$

where:

- Ar is an aromatic residue;
- the X units, which are alike or different, represent a fluorine or a radical of formula  $C_nF_{2n+1}$  with n an integer at most equal to 5, preferably to 2;
- p represents an integer at most equal to 2;
- EWG represents a hydrocarbonaceous group or an electron-withdrawing group, the optional functional groups of which are inert under the reaction conditions, advantageously fluorine or a perfluorinated residue of formula  $C_nF_{2n+1}$  with an integer at most equal to 8, advantageously to 5.

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The total carbon number of  $-(CX_2)_p$ -EWG is advantageously between 1 and 15, preferably between 1 and 10.

- m is 0 or an integer chosen within the closed range  
5 (that is to say, comprising the limits) 1 to 4;
- R represents alike or different radicals chosen from halogens, advantageously light halogens (that is to say, chlorine and fluorine), and hydrocarbonaceous radicals, preferably alkyl, aryl, alkylchalcogenyl  
10 (such as alkyloxy) or arylchalcogenyl (such as aryloxy) radicals.

15 15. The process as claimed in claims 1 to 14, characterized in that the solvents are chosen from chlorobenzenes, advantageously monochloro-, dichloro- and trichlorobenzenes.

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